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APPENDIX C

AIR QUALITY REPORT

Westfield Valley Fair Expansion Air Quality Study

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Prepared for:

Jodi Starbird

David J. Powers and Associates
1885 The Alameda, Suite 204
San Jose, California 95126

Prepared by:

James A. Reyff

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality
505 Petaluma Boulevard South
Petaluma, CA 94952
(707) 766-7700

Job No.: 06-071

Introduction

This report presents results of an air quality impact assessment for the proposed expansion of the Westfield Valley Fair Shopping Center in San Jose, CA. The proposed project would expand the approximately 650,000 square foot existing Westfield Valley Fair Shopping Center structure to accommodate up to two new anchor stores and additional retail space. About 552,000 square feet of new retail space would be added. The project also includes the demolition and reconstruction of two existing parking structures. One structure would be reconstructed and expanded in its existing location in the northeastern portion of the site, while the other structure would be relocated to the south of its existing location. These two new five level parking structures would include roof-top parking and provide a total of approximately 2,689 additional parking spaces when compared to the existing structures. Two standby emergency power generators are also proposed as part of the project.

This analysis evaluates the air quality impacts of the proposed project, resulting primarily from demolition/construction and new vehicle traffic. This analysis primarily focuses on air pollution from daily emissions and pollutant concentrations. Emissions, which are the quantity of pollutant that the project would emit both directly and indirectly, are measured in pounds per day. The amount of pollutant material measured per volumetric unit of air is referred to as the concentration and is typically measured in parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). Stationary sources associated with the project, which could result in adverse air quality impacts that would contribute to air quality emissions, have not been identified. This analysis was conducted following guidance provided by the Bay Area Air Quality Management District (BAAQMD)[1].

Overall Regulatory Setting

The Federal Clean Air Act governs air quality in the United States. In addition to being subject to federal requirements, air quality in California is also governed by more stringent regulations under the California Clean Air Act. At the Federal level, the United States Environmental Protection Agency (USEPA) administers the Clean Air Act (CAA). The California Clean Air Act is administered by the California Air Resources Board (CARB) at the State level and by the Air Quality Management Districts at the regional and local levels. The Bay Area Air Quality Management District (BAAQMD) regulates air quality at the regional level, which includes the nine-county Bay Area.

<u>United States Environmental Protection Agency</u>

The USEPA is responsible for enforcing the Federal CAA. The USEPA is also responsible for establishing the National Ambient Air Quality Standards (NAAQS). The NAAQS are required under the 1977 CAA and subsequent amendments. The USEPA regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain types of locomotives. The agency has jurisdiction over emission sources outside state waters (e.g., beyond the outer continental shelf) and establishes various emission standards, including

[1] BAAQMD CEQA Guidelines for Assessing Air Quality Impacts from Projects and Plans, 1996, revised 1999.

those for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission standards established by the CARB.

California Air Resources Board

In California, the CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for meeting the state requirements of the Federal CAA, administering the California CAA, and establishing the California Ambient Air Quality Standards (CAAQS). The California CAA, as amended in 1992, requires all air districts in the State to endeavor to achieve and maintain the California Ambient Air Quality Standards (CAAQS). The CARB regulates mobile air pollution sources, such as motor vehicles. The agency is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. The CARB has established passenger vehicle fuel specifications. The CARB oversees the functions of local air pollution control districts and air quality management districts, which in turn administer air quality activities at the regional and county level.

Bay Area Air Quality Management District

In 1955, the California Legislature created the Bay Area Air Quality Management District (BAAQMD). The agency is primarily responsible for assuring that the National and State ambient air quality standards are attained and maintained in the Bay Area. The BAAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, conducting public education campaigns, as well as many other activities. The BAAQMD has jurisdiction over much of the nine-county Bay Area counties.

National and State Ambient Air Quality Standards

As required by the Federal Clean Air Act, the NAAQS have been established for six major air pollutants: carbon monoxide (CO), nitrogen oxides (NO_x), ozone (O_3), respirable particulate matter (PM_{10}), fine particulate matter ($PM_{2.5}$), sulfur oxides, and lead. Pursuant to the California Clean Air Act, the State of California has also established ambient air quality standards. These standards are generally more stringent than the corresponding federal standards and incorporate additional standards for sulfates, hydrogen sulfide, vinyl chloride and visibility reducing particles.

Both State and Federal standards are summarized in Table 1. The "primary" standards have been established to protect the public health. The "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, materials, vegetation and other aspects of the general welfare. The CAAQS are more stringent than the NAAQS. Thus, the CAAQS are used as the comparative standard in this analysis.

Table 1 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	NATIONAL STANDARDS [a]	
			Primary [b,c]	Secondary [b,d]
Ozone	8-hour	0.07 ppm (137 μg/m^3)	0.08 ppm (157 μg/m^3)	—
	1-hour	0.09 ppm (180 μg/m^3)	—[e]	Same as primary
Carbon monoxide	8-hour	9 ppm (10 mg/m^3)	9 ppm (10 mg/m^3)	—
	1-hour	20 ppm (23 mg/m^3)	35 ppm (40 mg/m^3)	—
Nitrogen dioxide	Annual	—	0.053 ppm (100 μg/m^3)	Same as primary
	1-hour	0.25 ppm (470 μg/m^3)	—	—
Sulfur dioxide	Annual	—	0.03 ppm (80 μg/m^3)	—
	24-hour	0.04 ppm (105 μg/m^3)	0.14 ppm (365 μg/m^3)	—
	3-hour	—	—	0.5 ppm (1,300 μg/m^3)
	1-hour	0.25 ppm (655 μg/m^3)	—	—
PM_{10}	Annual	20 μg/m^3	--[f]	Same as primary
	24-hour	50 μg/m^3	150 μg/m^3	Same as primary
$PM_{2.5}$	Annual	12 μg/m^3	15 μg/m^3	
	24-hour	—	35 μg/m^3 [f]	
Lead	Calendar quarter	—	1.5 μg/m^3	Same as primary
	30-day average	1.5 μg/m^3	—	—

Notes: (a) Standards, other than for ozone and those based on annual averages, are not to be exceeded more than once a year. The ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above the standard is equal to or less than one.

(b) Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

(c) Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the EPA.

(d) Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

(e) The national 1-hour ozone standard was revoked by U.S. EPA on June 15, 2005.

(f) The annual PM_{10} standard was revoked by U.S. EPA on September 21, 2006 and a new $PM_{2.5}$ 24-hour standard was established.

Criteria Air Pollutants & Effect

Air quality studies generally focus on five pollutants that are most commonly measured and regulated: CO, O_3, NO_2, SO_2, and suspended particulate, i.e., PM_{10} and $PM_{2.5}$.

Carbon Monoxide. CO, a colorless and odorless gas, interferes with the transfer of oxygen to the brain. It can cause dizziness and fatigue, and can impair central nervous system functions. CO is emitted almost exclusively from the incomplete combustion of fossil fuels. Automobile exhausts release approximately 70 percent of the CO in the Bay Area. A substantial amount also comes from burning wood in fireplaces and wood stoves. CO is a non-reactive air pollutant that dissipates relatively quickly, so ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. The highest CO concentrations measured in the Bay Area are typically recorded during the winter.

Ozone. O_3, a colorless toxic gas, is the chief component of urban smog. O_3 enters the blood stream and interferes with the transfer of oxygen, depriving sensitive tissues in the heart and brain of oxygen. Although O_3 is not directly emitted, it forms in the atmosphere through a chemical reaction between reactive organic gas (ROG) and nitrogen oxides (NO_X) under sunlight.[2] ROG and NOx are primarily emitted from automobiles and industrial sources. O_3 is present in relatively high concentrations within the Bay Area, and the damaging effects of photochemical smog are generally related to the concentration of O_3. Highest O_3 concentrations occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies.

Nitrogen Dioxide. NO_2, a reddish-brown gas, irritates the lungs. It can cause breathing difficulties at high concentrations. Like O_3, NO_2 is not directly emitted, but is formed through a reaction between nitric oxide (NO) and atmospheric oxygen. NO and NO_2 are collectively referred to as nitrogen oxides (NO_x) and are major contributors to O_3 formation. NO_2 also contributes to the formation of PM_{10} (see discussion of PM_{10} below).

Sulfur Oxides. Sulfur oxides, primarily SO_2, are a product of high-sulfur fuel combustion. The main sources of SO_2 are coal and oil used in power stations, in industries, and for domestic heating. SO_2 is an irritant gas that attacks the throat and lungs. It can cause acute respiratory symptoms and diminished ventilator function in children. SO_2 concentrations have been reduced to levels well below the state and national standards, but further reductions in emissions are needed to attain compliance with standards for PM_{10}, of which SO_2 is a contributor.

Suspended Particulate Matter. Particulate matter pollution consists of very small particles suspended in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter also forms when industry and gaseous pollutant undergo chemical reactions in the atmosphere. Respirable particulate matter (PM_{10}) and fine particulate matter ($PM_{2.5}$) represent fractions of particulate matter. PM_{10} refers to particulate matter less than 10 microns in diameter and $PM_{2.5}$ refers to particulate matter that is 2.5 microns or less in diameter. Major sources of $PM_{2.5}$ results primarily from diesel fuel combustion (from motor vehicles, power generation, industrial facilities), residential fireplaces, and wood stoves. PM_{10} include all $PM_{2.5}$ sources as well as emissions from dust generated by construction, landfills, and agriculture; wildfires and brush/waste burning, industrial sources, windblown dust from open lands, and atmospheric

[2] ROG and NO_X are emitted from automobiles and industrial sources.

chemical and photochemical reactions. PM_{10} and $PM_{2.5}$ pose a greater health risk than larger-size particles, because these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract increasing the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Whereas, larger particles tend to collect in the upper portion of the respiratory system, $PM_{2.5}$ are so tiny that they can penetrate deeper into the lungs and damage lung tissues. Suspended particulates also damage and discolor surfaces on which they settle, as well as produce haze and reduce regional visibility. U.S. EPA recently adopted a new more stringent standard of 35 $\mu g/m^3$ for 24-hour exposures, based on a review of the latest new scientific evidence. At the same time, U.S. EPA revoked the annual PM_{10} standard due to a lack of scientific evidence correlating long-term exposures of ambient PM_{10} with health effects.

Toxic Air Contaminants (TAC)

TACs are a broad class of compounds known to cause morbidity or mortality (usually because they cause cancer) and include, but are not limited to, the criteria air pollutants listed above. TACs are found in ambient air, especially in urban areas, and are caused by industry, agriculture, fuel combustion, and commercial operations (e.g., dry cleaners). TACs are typically found in low concentrations, even near their source (e.g., benzene near a freeway). Because chronic exposure can result in adverse health effects, TACs are regulated at the regional, state, and federal level.

Diesel exhaust is the predominant TAC in urban air and is estimated to represent about two-thirds of the cancer risk from TACs (based on the statewide average). According to the CARB, diesel exhaust is a complex mixture of gases, vapors and fine particles. This complexity makes the evaluation of health effects of diesel exhaust a complex scientific issue. Some of the chemicals in diesel exhaust, such as benzene and formaldehyde, have been previously identified as TACs by the ARB, and are listed as carcinogens either under the state's Proposition 65 or under the federal Hazardous Air Pollutants programs. California has adopted a comprehensive diesel risk reduction program. The U.S. EPA has adopted low sulfur diesel fuel standards that will reduce diesel particulate matter substantially. These go into effect in late 2006.

In cooler weather, smoke from residential wood combustion can be a source of TACs. Localized high TAC concentrations can result when cold stagnant air traps smoke near the ground and, with no wind, the pollution can persist for many hours. This occurs in sheltered valleys during the winter. Wood smoke also contains a significant amount of PM_{10} and $PM_{2.5}$. Wood smoke is an irritant and is implicated in worsening asthma and other chronic lung problems.

Air Quality Planning

Bay Area Clean Air Plan

The BAAQMD along with the other regional agencies (i.e., ABAG and MTC) has prepared an Ozone Attainment Plan to address the NAAQS for O_3. However, this plan became obsolete when EPA revoked the 1-hour O3 NAAQS. There are no plans required for the Bay Area to address the 8-hour O_3 NAAQS, since the area's attainment date is 2007. The region will be required to submit a maintenance plan and demonstration of attainment with a request for redesignation to EPA in when the 8-hour O3 NAAQS is met. A Carbon Monoxide Maintenance Plan was approved in 1998 by EPA, which demonstrated how the NAAQS for carbon monoxide standard would be maintained.

Air quality plans addressing the California Clean Air Act are developed about every three years. The plans are meant to demonstrate progress toward meeting the more stringent 1-hour O3 CAAQS. The latest plan, which was adopted in January 2006, is called the Bay Area 2005 Ozone Strategy. This plan includes a comprehensive strategy to reduce emissions from stationary, area, and mobile sources. The plan objective is to indicate how the region would make progress toward attaining the stricter state air quality standards, as mandated by the California Clean Air Act. The plan is designed to achieve a region-wide reduction of O3 precursor pollutants through the expeditious implementation of all feasible measures. The plan pro-poses implementation of transportation control measures (TCMs) and programs such as Spare the Air. Spare the Air is a public outreach program designed to educate the public about air pollution in the Bay Area and promote individual behavior changes that improve air quality. Some of these measures or programs rely on local governments for implementation.

A key element in air quality planning is to make reasonably accurate projections of future human activities that are related to air pollutant emissions. Most important is vehicle activity. The BAAQMD uses population projections made by the ABAG and vehicle use trends made by the Metropolitan Transportation Commission to formulate future air pollutant emission inventories. The basis for these projections comes from cities and counties. In order to provide the best plan to reduce air pollution in the Bay Area, accurate projections from local governments are necessary. When General Plans are not consistent with these projections, they cumulatively reduce the effectiveness of air quality planning in the region.

<u>San José General Plan</u>

The San José General Plan includes the following policies intended to control or reduce air pollution impacts:

- *Air Quality Policy 1* states that the City should take into consideration the cumulative air quality impacts from proposed developments and should establish and enforce appropriate land uses and regulations to reduce air pollution consistent with the region's Clean Air Plan and state law.

- *Air Quality Policy 2* states that expansion and improvement of public transportation services and facilities should be promoted, where appropriate, to both encourage energy conservation and reduce air pollution.

- *Air Quality Policy 5* states that in order to reduce vehicle miles traveled and traffic congestion, new development within 1,000 feet of an existing or planned transit station should be designed to encourage the usage of public transit and minimize the dependence on the automobile through the application of site design guidelines.

- *Energy Policy 1* states that the City should promote development in areas served by public transit and other existing services. Higher residential densities should be encouraged to locate in areas served by primary public transit routes and close to major employment centers.

- *Energy Policy 2* states that decisions on land use should consider the proximity of industrial and commercial uses to major residential areas in order to reduce the energy used for commuting.

- *Transportation, Pedestrian Facilities, Policy 17* states that pedestrian travel should be encouraged as a mode of movement between residential and non-residential areas throughout the City and in activity areas.

- *Transportation, Pedestrian Facilities, Policy 19* states that the City should encourage walking, bicycling, and public transportation as preferred modes of transportation.

- *Transportation, Pedestrian Facilities, Policy 23* states that each land use has different pedestrian needs. Street and sidewalk designs should relate to the function of the adjoining land use(s) and transit access points.

- *Transportation, Transportation Systems Management/Transportation Demand Management, Policy 28* states that the City should promote participation and implementation of appropriate Transportation Demand Management measures such as carpooling and vanpooling, preferential parking and staggered work hours/flextime, as well as bicycling and walking, by all employers.

- *Transportation, Bicycling, Policy 50* states that the City should develop a safe, direct, and well-maintained transportation bicycle network linking residences, employment centers, schools, parks and transit facilities and should promote bicycling as an alternative mode of transportation for commuting as well as for recreation.

- *Transportation, Bicycle, Policy 52* states that priority improvements to the Transportation Bicycle Network should include: bike routes linking light rail stations to nearby neighborhoods, bike paths along designated trails and pathway corridors, and bike paths linking residential areas to major employment centers.

Physical Setting

Climate and Topography

The climate is mainly characterized by warm dry summers with abundant sunshine and cool moist winters with variable cloudiness. The proximity of the Pacific Ocean and San Francisco Bay has a moderating influence on the climate. The portion of the project in San José lies in the Santa Clara Valley, which is generally oriented from the northwest to the southeast. This valley is bounded to the north by the San Francisco Bay, and by mountains to the east, south, and west. The surrounding terrain greatly influences winds in the valley, resulting in a prevailing wind that follows along the valley's northwest-southeast axis. During the afternoon and early evening, a north-northwesterly sea breeze often flows from the Bay through the valley, and a light south-southeasterly drainage flow often occurs during the late evening and early morning hours.

Typical summer maximum temperatures for the region are in the 80's, while winter maximum temperatures are in the high 50's or low 60's. Minimum temperatures usually range from the high 50's in the summer to the upper 30's and low 40's in the winter. Rainfall in the valley is approximately 15 to 20 inches per year, occurring mostly in the months of November through March.

Air quality standards for ozone traditionally are exceeded when relatively stagnant conditions occur for periods of several days during the warmer months of the year. Weak wind flow patterns combined with strong inversions substantially reduces normal atmospheric mixing. Key components of ground-level ozone formation are sunlight and heat; therefore, significant ozone formation only occurs during the months from late spring through early fall. Prevailing winds during the summer and fall can transport and trap ozone precursors from the more urbanized portions of the Bay Area. Meteorological factors make air pollution potential in the Santa Clara Valley quite high. The clear skies with relatively warm conditions that are typical in summer combine with transported and localized air pollutant emissions to elevate ozone levels. The surrounding mountains up slope and down slope flows may also recirculate pollutants already present, contributing to the buildup of air pollution. Light winds and stable conditions during the late fall and winter contribute to the buildup of particulate matter from motor vehicles, agriculture, and wood burning in fireplaces and stoves.

Air Monitoring Data

Air quality in the region is controlled by the rate of pollutant emissions and meteorological conditions. Meteorological conditions such as wind speed, atmospheric stability, and mixing height may all affect the atmosphere's ability to mix and disperse pollutants. Long-term variations in air quality typically result from changes in air pollutant emissions, while frequent, short-term variations result from changes in atmospheric conditions. The San Francisco Bay Area is considered to be one of the cleanest metropolitan areas in the country with respect to air quality. The BAAQMD monitors air quality conditions at over 30 locations throughout the Bay Area. There are several BAAMQD monitoring stations in San José. Air pollutant concentrations measured at stations closest to the project area are shown in Table 2.

The pollutant of most concern in the San José area is ozone, since prevailing summertime wind conditions tend to cause a build up of ozone in the Santa Clara Valley. Ozone levels measured in San Jose, exceeded the state ozone standard from 0 to 4 times in 2001-2005. Neither the former federal 1-hour ozone standard nor the current 8-hour standard has been exceeded in the last five years. Measured exceedances of the state PM_{10} standard have occurred between 2 and 4 measurement days each year in San José (estimated at 12 to 24 days). PM_{10} and $PM_{2.5}$ are measured every sixth day. Exceedances of the federal $PM_{2.5}$ standard of 65 $\mu g/m^3$ were not measured in San José; however, the new standard of 35 $\mu g/m^3$ has been exceeded in each of the last three years. The entire Bay Area, including San Jose, did not experience any exceedances of other air pollutants. Table 3 reports the number of days that an ambient air quality standard was exceeded at any of the stations in San José near the project and in the entire Bay Area.

Table 2 Highest Measured Air Pollutant Concentrations

Pollutant	Average Time	Measured Air Pollutant Levels 2001	2002	2003	2004	2005
East San Jose						
Ozone (O_3)	1-Hour	0.09 ppm	0.09 ppm	**0.10** ppm	0.09 ppm	**0.11 ppm**
	8-Hour	0.06 ppm	0.07 ppm	0.07 ppm	0.07 ppm	0.08 ppm
San José 4th Street/Central (relocated in 2002)						
Ozone (O_3)	1-Hour	**0.11** ppm	-- ppm	**0.12** ppm	0.09 ppm	**0.11** ppm
	8-Hour	0.07 ppm	-- ppm	0.08 ppm	0.07 ppm	0.08 ppm
Carbon Monoxide (CO)	8-Hour	5.1 ppm	4.5 ppm	4.0 ppm	2.9 ppm	3.1 ppm
Nitrogen Dioxide (NO_2)	1-Hour	0.11 ppm	0.08 ppm	0.09 ppm	0.07 ppm	0.07 ppm
	Annual	0.024ppm	NA	0.021ppm	NA	0.021ppm
San Jose – Tully Road						
Fine Particulate Matter (PM_{10})	24-Hour	**75** ug/m^3	**70** ug/m^3	58 ug/m^3	58 ug/m^3	**71 ug/m^3**
	Annual	23 ug/m^3	NA	**25** ug/m^3	**25** ug/m^3	**24 ug/m^3**
Respirable Particulate Matter ($PM_{2.5}$)	24-Hour	NA	58 ug/m^3	52 ug/m^3	52 ug/m^3	51 ug/m^3
	Annual	NA	NA	10 ug/m^3	10 ug/m^3	11 ug/m^3
Bay Area (Basin Summary)						
Ozone (O_3)	1-Hour	**0.13** ppm	**0.16** ppm	**0.13** ppm	**0.11** ppm	**NA**
	8-Hour	**0.10** ppm	**0.11** ppm	**0.10** ppm	0.08 ppm	**NA**
Carbon Monoxide (CO)	8-Hour	5.1 ppm	4.5 ppm	4.0 ppm	3.4 ppm	**NA**
Nitrogen Dioxide (NO_2)	1-Hour	0.11 ppm	0.08 ppm	0.09 ppm	0.07 ppm	**NA**
	Annual	0.024ppm	0.014ppm	0.021ppm	0.019ppm	**NA**
Fine Particulate Matter ($PM_{2.5}$)	1-Hour	NA	**77** ug/m^3	56 ug/m^3	**74** ug/m^3	**NA**
	Annual	NA	14 ug/m^3	11.7 ug/m^3	11.6 ug/m^3	**NA**
Respirable Particulate Matter (PM_{10})	24-Hour	**109** µg/m^3	**84** µg/m^3	**60** µg/m^3	**65** µg/m^3	**NA**
	Annual	**26** ug/m^3	**25** ug/m^3	**25** ug/m^3	**26** ug/m^3	**NA**

Source: BAAQMD Air Quality Summaries for 2001, 2002, 2003, and 2004, and 2005 and California Air Resources Board Air Quality Data website http://www.arb.ca.gov/aqd/aqdpage.htm.

Note: ppm = parts per million and ug/m^3 = micrograms per cubic meter
Values reported in bold exceed ambient air quality standard
NA = data not available.

Table 3 Annual Number of Days Exceeding Ambient Air Quality Standards

Pollutant	Standard	Monitoring Station	Days Exceeding Standard 2001	2002	2003	2004	2005
Ozone (O_3.)	NAAQS 1-hr	San Jose BAY AREA	0 1	0 2	0 1	0 0	X X
	NAAQS 8-hr	San Jose BAY AREA	0 7	0 7	0 7	0 0	0 1
	CAAQS 1-hr	San Jose BAY AREA	2 15	0 16	4 19	0 7	1 9
Fine Particulate Matter (PM_{10})	NAAQS 24-hr	San Jose BAY AREA	0 0	0 0	0 0	0 0	0 0
	CAAQS 24-hr	San Jose BAY AREA	4 10	2 6	2 6	3 7	4 6
Fine Particulate Matter ($PM_{2.5}$)	NAAQS 24-hr*	San Jose BAY AREA	NA 5	NA 7	0 0	0 1	0 0
All Other (CO, NO_2, Lead, SO_2)	All Other	San Jose (Tully) BAY AREA	0 0	0 0	0 0	0 0	0 0

* Based on standard of 65 $\mu g/m^3$ that was in place until September 21, 2006.
NA = data not available.

Attainment Status

Areas that do not violate ambient air quality standards are considered to have attained the standard. Violations of ambient air quality standards are based on air pollutant monitoring data and are judged for each air pollutant. The Bay Area as a whole does not meet State or Federal ambient air quality standards for ground level O_3 and State standards for fine particulate matter.

Under the Federal CAA, the US EPA has classified the region as marginally nonattainment for the 8-hour O_3 standard. EPA requires the region to attain the standard by 2007. The Bay Area has met the CO standards for over a decade and is classified *attainment maintenance* by the US EPA. The US EPA grades the region *unclassified* for all other air pollutants, which include PM_{10} and $PM_{2.5}$.

At the State level, the region is considered *serious non-attainment* for ground level O_3 and non-attainment for PM_{10}. California ambient air quality standards are more stringent than the national ambient air quality standards. The region is required to adopt plans on a triennial basis that show progress towards meeting the State O_3 standard. The area is considered attainment or unclassified for all other pollutants.

Recent $PM_{2.5}$ monitoring data for San José suggest that the County exceeds the new national $PM_{2.5}$ standards for 24-hour exposures. U.S. EPA is expected to make rulings on areas attainment designations in 2010 based on 2007 to 2009 monitoring data. Most nonattainment areas would have until 2015 to attain the standards with some extensions to 2020 possible.

Sensitive Receptors

Some groups of people are more affected by air pollution than others. CARB has identified the following people who are most likely to be affected by air pollution: children under 14, the elderly over 65, athletes, and people with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive receptors. Locations that may contain a high concentration of these sensitive population groups include residential areas, hospitals, daycare facilities, elder care facilities, elementary schools, and parks.

Environmental Impacts and Mitigations

Thresholds of Significance

CEQA Guidelines prepared by the BAAQMD are used to establish the significance criteria to judge the impacts caused by the project. The following are the significance criteria that the BAAQMD has established to determine project impacts:

Construction
The BAAQMD's approach to the CEQA analysis of construction impacts is to emphasize the implementation of effective and comprehensive control measures rather than detailed quantification of emissions. If the appropriate construction controls are implemented, air pollutant emissions for construction activities would be considered less than significant.

Operations
Build out of the project (operation) would cause a significant air quality impact if it were to result in:

- Ozone precursor emissions (ROG and NO_x) and PM_{10} emissions from direct and indirect sources (non typical construction) that exceed the thresholds recommended by the BAAQMD. The BAAQMD recommends a threshold of 80 pounds per day or 15 tons per year for direct and indirect sources of ROG, NO_x, and PM_{10}. The BAAQMD does not have thresholds that specifically address $PM_{2.5}$; therefore, the PM_{10} emissions threshold is used to judge a project's impact to $PM_{2.5}$, since all PM_{10} includes $PM_{2.5}$.

- Emissions of carbon monoxide cause a projected exceedance of the ambient carbon monoxide state standard of 9.0 ppm for 8-hour averaging period.

Consistency with Clean Air Planning Efforts
Project cumulative impacts are judged upon consistency to plans that are found to be consistent with the regional clean air planning efforts. The *BAAQMD CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans (1999)* recommends using an analysis that determines the consistency of the project with the General Plan.

Environmental Impacts

Impact 1: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? *Yes*

Project Impacts

The Bay Area is considered a non-attainment area for ground-level ozone under both the federal Clean Air Act and the California Clean Air Act. The area is also considered non-attainment for respirable particulates or particulate matter with a diameter of less than 10 micrometers (PM_{10}) under the California Clean Air Act, but not the federal act. The area has attained both State and federal ambient air quality standards for carbon monoxide. The Bay Area is considered to be in attainment for all other regulated air pollutants (i.e., nitrogen dioxide, sulfur dioxide and lead). The BAAQMD significance thresholds are for ozone precursor pollutants (reactive organic gases and nitrogen oxides) and PM_{10}. Project direct and indirect emissions are computed and compared to the thresholds.

Area and Mobile Sources

The proposed project would add new traffic trips, which would lead to increased emissions of air pollutants. Emissions of air pollutants associated with the proposed project were predicted using the URBEMIS2002 model (Version 8.7), distributed by Air Quality Management Districts and recommended for use by the BAAQMD. This model predicted daily emissions associated with land use developments. The model combines predicted daily traffic activity, associated with the different land use types, with emission factors from the State's mobile emission factor model (i.e., EMFAC2002). Traffic generation provided by Hexagon Transportation Consultants was used in the model to provide daily traffic generation estimates based on selected land uses. The URBEMIS2002 model default for passby trips was used, although the traffic data indicate a 25% reduction in trip generation for PM peak-hour trip. The URBEMIS 2002 model also predicted area source emissions associated with the additional project buildings, which are minor compared to emissions associated with traffic. The project emissions were predicted for a normal weekday, a weekend condition (using Saturday traffic projections) and annual conditions. Saturday or weekend conditions would typically have more shoppers using the project. Annual emissions assumed that each week consisted of five weekdays and two weekend day emissions. Daily and annual emissions predicted with full build out of the project are as follows:

Table 4 Project Emissions based on URBEMIS2002 Modeling

Scenario	Reactive Organic Gases (ROG)	Nitrogen Oxides (NOx)	Carbon Monoxide (CO)	Respirable Particulates (PM_{10})
Daily Weekday Condition	*104 lbs*	*100 lbs*	*956 lbs*	*103 lbs*
Daily Weekend (Saturday) Condition	*132 lbs*	*130 lbs*	*1,256 lbs*	*135 lbs*
Annual Emissions	*20.4 tons*	*19.8 tons*	*190.1 tons*	*20.5 tons*
BAAQMD Thresholds	*80 lbs/day*	*80 lbs/day*	*550 lbs/day**	*80 lbs/day*
	15 tons/year	*15 tons/year*	*100 tons/year*	*15 tons/year*
URBEMIS 2002 Modeling Assumptions: Land Use Type = *Retail Shopping Center,* Geographic Area = *San Francisco Bay Area,* Year of Analysis = *2010*				

* For stationary sources only

Stationary Sources

The only stationary sources of air pollution identified with build out of the project are two standby emergency power systems. Preliminary plans indicate that two 300-kilowatt standby power systems (i.e., Kohler Model 300REOZDB Power Systems) would be located on the site between the proposed parking structure along Steven Creek Boulevard and Monroe Street. According to the specification sheets provided by Kohler, Detroit Diesel S60 engines would power the systems. The generators would be located about 200 feet from the nearest store (or worker location). The nearest residences would be much further away.

The 300-kilowatt (kW) standby generator would be used for backup power in emergency conditions. The generators will be driven by 490 horsepower (hp) diesel-fueled engines under maximum load. The generators will be operated for testing and maintenance purposes, with a maximum of 50 hours per year of non-emergency operation under normal conditions. During testing periods the engine would typically be run for less than one hour. The engine would be required to meet U.S. EPA and CARB Tier 3 Mobile Off-Highway emission standards. The engine will burn commercially available California low sulfur diesel fuel. Daily and annual emissions associated with the operation of these emergency power systems are reported below.

Table 5 Standby Emergency Generator Testing Emissions

Scenario	Reactive Organic Gases (ROG)	Nitrogen Oxides (NOx)	Carbon Monoxide (CO)	Particulate Matter (PM_{10} or $PM_{2.5}$)
Daily Testing of both Systems for up to one hour	*0.3 lbs/day*	*6.2 lbs/day*	*5.6 lbs/day*	*0.3 lbs/day*
Annual Testing of both Systems for up to fifty hours	*0.01 tons/year*	*0.15 tons/year*	*0.14 tons/year*	*0.01 tons/year*

The generators would require permits from the BAAQMD, since they are equipped with engines larger than 50 hp. The Authority to Construct (ATC) permit would require that the applicant demonstrate that the generators meet BAAQMD Best Available Technology (BACT) for NOx and CO and BAAQMD toxics BACT or TBACT for particulate matter. In addition, an assessment that shows less than significant health risks from diesel particulate matter exposure would be required to support the permit.

The risk assessment would have to be prepared in accordance BAAQMD Risk Management Policy for Diesel Engines and address exposures for both sensitive receptors and worker exposures. Sources of air pollutant emissions complying with all applicable BAAQMD regulations generally will not be considered to have a significant air quality impact. Stationary sources that are exempt from BAAQMD permit requirements because they fall below emission thresholds for permitting would not be considered to have a significant air quality impact.

Summary of Air Pollutant Emissions

The combination of direct and indirect emissions of ozone precursor pollutants (i.e., ROG and NOx) and PM_{10} would exceed the thresholds established by the BAAQMD. The thresholds for these pollutants would be exceeded for both weekday and weekend (Saturday) conditions, with Saturday having considerably higher emissions due to increased traffic generation. In addition, annual emissions would exceed the BAAQMD thresholds for these pollutants. Operation of the proposed emergency generators would not be allowed by BAAQMD if they were predicted to present a significant health risk.

Emissions of ozone precursor pollutants that exceed the significance thresholds could impact the regions' effort to attain and maintain the ozone ambient air quality standards. Ozone is an air pollutant that exacerbates lung diseases (e.g., asthma) and can interfere with the body's ability to transfer oxygen to sensitive tissues. Emissions associated with the project are not likely to have a measurable effect on ozone concentrations in the region, but when combined with emissions from other sources in the region, they constrain efforts to reduce regional emissions to attain the health-based ambient air quality standards throughout the Bay Area.

The project's emissions of PM_{10} could contribute to regional PM_{10} and $PM_{2.5}$ concentrations. Most areas of the South Bay exceed the health-based State ambient air quality standards about 12 to 24 days per year. The State annual PM_{10} standard has been exceeded in each of the last three years in San Jose. Monitoring data indicate that $PM_{2.5}$ levels exceed the new national 24-hour standard for $PM_{2.5}$. The project impacts would be regional in nature since most of the emissions are produced by vehicle travel that is spread out over a broad area. PM_{10} and $PM_{2.5}$ are air pollutants that at high concentrations can result in damage to the respiratory tract increasing the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases. High PM_{10} levels also degrade visibility.

The ozone precursor and PM_{10} emissions are predicted to be above the significance thresholds established by the BAAQMD, and therefore, would be considered *significant.*

Mitigation Measures: Reduce air pollutant emissions from both traffic trips and area sources through the measures listed below.

- Improve existing or construct new bus pullouts and transit stops at convenient locations with pedestrian access to the project sites. Pullouts should be designed so that normal traffic flow on arterial roadways would not be impeded when buses are pulled over to serve riders. Stops should include nearby shelter, benches and posting of transit information. This vehicle trip reduction measure could reduce emissions by about 1 percent.

- Bicycle amenities should be provided for the project. This would include secure bicycle parking for retail employees, bicycle racks for retail customers, and bike lane connections. This vehicle trip reduction measure could reduce emissions by an about 0.5 to 1 percent.

- Consider providing pedestrian signage and signalization. Enhance pedestrian crossings at strategic areas with countdown signals that would enhance pedestrian use.

- Pedestrian sidewalks or pathways should include easy access and signage to bus stops and roadways that serve the major site uses. This may reduce emissions by an about 0.5 to 1 percent.

- Project site employers should be required to promote transit use by providing transit information and incentives to employees. This measure may reduce emissions by about 0.5 to 1 percent.

- Provide exterior electrical outlets to encourage use of electrical landscape equipment.

- Prohibit idling of trucks at loading docks for more than 3 minutes and include signage indicating such a prohibition.

- If necessary, provide 110- and 220-volt electrical outlets at loading docks to eliminate any idling of trucks to operate auxiliary equipment.

- Implement a landscape plan that provides shade trees along pedestrian pathways.

- Implement "Green Building" designs (e.g., Leadership in Energy and Environmental Design – LEED) into buildings to increase energy efficiency, which would reduce the future energy demand caused by the project, and therefore, reduce air pollutant emissions indirectly.

Significance after mitigation: The sum of direct and indirect emissions from the project with mitigation measures implemented would not be reduced below the BAAQMD significance thresholds. The measures would represent reasonable and feasible efforts to reduce project emissions. However, it would be difficult to achieve significant emission reductions since most emissions would be produced by customer automobile trips associated with a regional shopping center. The mitigation measures would achieve about a 5-percent reduction in emissions. The impact with mitigation measures would be significant and unavoidable.

Impact 2: Violate any air quality standard or contribute substantially to an existing or projected air quality violation? *No*

Carbon monoxide emissions from traffic generated by the project would be the pollutant of greatest concern at the local level. Congested intersections with a large volume of traffic have the greatest potential to cause high-localized concentrations of carbon monoxide. Measured carbon monoxide levels have been at healthy levels (i.e., below State and federal standards) in the Bay Area since the early 1990s. As a result, the region has been designated as attainment for the standard. There is an ambient air quality monitoring station in central San Jose that measures carbon monoxide concentrations. The highest measured level over any 8-hour averaging period during the last 3 years is 4.5 parts per million (ppm). The contribution of project-generated traffic to these levels was predicted following the screening guidance recommended by the BAAQMD. The intersections along Stevens Creek Boulevard and Winchester Boulevard are considered the worst intersections (in terms of elevated carbon monoxide levels from traffic) that would be affected by project-generated traffic. Future carbon monoxide levels were predicted near this intersection for existing conditions and with the project in place using traffic projections provided by Hexagon Transportation Consultants. Emission factors used were calculated using the EMFAC2002 model, developed by the California Air Resources Board, with default assumptions for the Bay Area during winter that include a temperature of 45 deg. F. A slow speed of 5 miles per hour was used that results in higher emission rates. This screening analysis included the number of through lanes in the intersection configuration with a receptor located at the edge of the roadway. Refined modeling using wider roadways that account for turn lanes would result in lower concentrations due to the increased mixing zone. Results are reported as follows:

Table 6 Predicted Roadside Carbon Monoxide Concentrations

Description	Existing 2005	Project with Background and Approved Projects 2010	Cumulative Conditions with Project 2020
Stevens Creek Blvd and Winchester Blvd	6.6 ppm	6.9 ppm	4.8 ppm
Stevens Creek Blvd and Santana Row	6.9 ppm	6.9 ppm	4.8 ppm
Stevens Creek Blvd and Monroe St	7.9 ppm	8.1 ppm	5.1 ppm
Winchester Blvd and Forest St	6.1 ppm	6.0 ppm	4.1 ppm
BAAQMD Thresholds	9.0 ppm (CAAQS)		

The highest 8-hour concentration with the project in place (in about 2010) is predicted to be 8.1 ppm over an 8-hour averaging period. This concentration would occur along Stevens Creek Boulevard, just west of the Interstate 880 freeway interchange. Lower concentrations would occur at other intersections affected by project traffic. This represents the roadside concentration with future PM peak hour conditions, as reported by Hexagon. The results of this screening analysis indicate that levels would be below the California ambient air quality standard (used to judge the significance of the impact) of 9.0 ppm; therefore, the impact is considered less-than-significant. Had levels been above the ambient air quality standards, a more refined analysis would have been conducted using the CALINE4 dispersion model and actual lane-receiver geometry.

Impact 3: Expose sensitive receptors to substantial pollutant concentrations? **Yes – if construction activities do not include proper controls. Effective mitigation recommended.**

Construction Dust

During demolition, grading and construction activities, dust would be generated. Most of the dust would result during demolition and grading activities. The amount of dust generated would be highly variable and is dependent on the size of the area disturbed, amount of activity, soil conditions and meteorological conditions. Grading activities, which generally generate the most dust, would be minimal since the site is developed. Nearby land uses, especially those located to the north of the project could be adversely affected by dust generated during construction activities.

Although grading and construction activities would be temporary, they would have the potential to cause both nuisance and health air quality impacts. PM_{10} is the pollutant of greatest concern associated with dust. If uncontrolled, PM_{10} levels downwind of actively disturbed areas could possibly exceed State standards. In addition, dust fall on adjacent properties could be a nuisance. If uncontrolled, dust generated by demolition, grading and construction activities represents a potentially significant impact.

Mitigation Measures: Include measures to control dust emissions.

Implementation of the measures recommended by the BAAQMD and listed below would reduce the air quality impacts associated with grading and new construction to a less than significant level:

1. Water all active construction areas at least twice daily and more often during windy periods. Active areas adjacent to residences should be kept damp at all times.

2. Cover all hauling trucks or maintain at least two feet of freeboard. Dust-proof chutes shall be used as appropriate to load debris onto trucks during demolition.

3. Pave, apply water at least twice daily, or apply (non-toxic) soil stabilizers on all unpaved access roads, parking areas, and staging areas.

4. Sweep daily (with water sweepers) all paved access roads, parking areas, and staging areas and sweep streets daily (with water sweepers) if visible soil material is deposited onto the adjacent roads.

5. Hydroseed or apply (non-toxic) soil stabilizers to inactive construction areas (i.e., previously-graded areas that are inactive for 10 days or more).

6. Enclose, cover, water twice daily, or apply (non-toxic) soil binders to exposed stockpiles.

7. Limit traffic speeds on any unpaved roads to 15 mph.

8. Replant vegetation in disturbed areas as quickly as possible.

9. Suspend construction activities that cause visible dust plumes to extend beyond the construction site.

10. During renovation and demolition activities, removal or disturbance of any materials contains asbestos, lead paint or other hazardous pollutants will be conducted in accordance with BAAQMD rules and regulations

Construction Equipment Exhaust

Construction equipment and associated heavy-duty truck traffic generates diesel exhaust, which is a known Toxic Air Contaminant. The BAAQMD has not developed any procedures or guidelines for identifying these impacts from temporary construction activities where emissions are transient. They are typically evaluated for stationary sources (e.g., large compression ignition engines such as generators) in health risk assessments over the course of lifetime exposures (i.e., 24 hours per day over 70 years). Diesel exhaust poses both a health and nuisance impact to nearby receptors. These construction activities are expected to occur during a relatively short time, and therefore, the impacts are considered to be less than significant if reasonable available control measures are applied.

Mitigation Measures: Include measures to reduce diesel particulate matter exhaust from construction equipment.

1. Prohibit use of "dirty" equipment. Opacity is an indicator of exhaust particulate emissions from off-road diesel powered equipment. The project shall ensure that emissions from all construction diesel powered equipment used on the project site do not exceed 40 percent opacity for more than three minutes in any one hour. Any equipment found to exceed 40 percent opacity (or Ringelmann 2.0) shall be repaired immediately
2. The contractor shall install temporary electrical service whenever possible to avoid the need for independently powered equipment (e.g. compressors).
3. Diesel equipment standing idle for more than two minutes shall be turned off. This would include trucks waiting to deliver or receive soil, aggregate, or other bulk materials. Rotating drum concrete trucks could keep their engines running continuously as long as they were onsite and staged away from residential areas.
4. Properly tune and maintain equipment for low emissions.

Impact 4: Conflict with or obstruct implementation of the applicable air quality plan? *No*

The project would not increase population beyond that anticipated in the General Plan and therefore, would be consistent with the latest Clean Air Plan.

Attachment 1

URBEMIS2002 MODEL OUTPUT

Weekday Emissions

Page: 1
07/14/2006 3:00 PM

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Westfield Valley Fair weekday.urb
Project Name: Westfield Valley
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	8.26	5.35	5.27	0.00	0.01

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	95.38	94.68	950.75	0.68	102.99

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	103.63	100.03	956.02	0.68	103.00

Page: 2
07/14/2006 3:00 PM

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Westfield Valley Fair weekday.urb
Project Name: Westfield Valley
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.39	5.34	4.49	0	0.01
Hearth - No summer emissions					
Landscaping	0.12	0.00	0.78	0.00	0.00
Consumer Prdcts	0.00	-	-	-	-
Architectural Coatings	7.74	-	-	-	-
TOTALS(lbs/day,unmitigated)	8.26	5.35	5.27	0.00	0.01

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Regnl shop. center	95.38	94.68	950.75	0.68	102.99
TOTAL EMISSIONS (lbs/day)	95.38	94.68	950.75	0.68	102.99

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
Regnl shop. center		37.33 trips/1000 sq. ft.	552.62	20,629.12

Sum of Total Trips 20,629.12
Total Vehicle Miles Traveled 67,649.81

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	54.70	1.10	98.70	0.20
Light Truck < 3,750 lbs	15.20	2.00	96.00	2.00
Light Truck 3,751- 5,750	16.20	1.20	98.10	0.70
Med Truck 5,751- 8,500	7.30	1.40	95.90	2.70
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.60	68.80	31.20	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.40	7.10	85.70	7.20

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Regnl shop. center				2.0	1.0	97.0

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Area

Changes made to the default values for Operations

The operational emission year changed from 2005 to 2010.

Saturday Emissions

Page: 1
07/14/2006 3:02 PM

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Westfield Valley Fair saturday.urb
Project Name: Westfield Valley
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

SUMMARY REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	8.26	5.35	5.27	0.00	0.01

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	95.38	94.68	950.75	0.68	102.99

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	103.63	100.03	956.02	0.68	103.00

Page: 2
07/14/2006 3:02 PM

URBEMIS 2002 For Windows 8.7.0

File Name: C:\Program Files\URBEMIS 2002 Version 8.7\Projects2k2\Westfield Valley Fair saturday.urb
Project Name: Westfield Valley
Project Location: San Francisco Bay Area
On-Road Motor Vehicle Emissions Based on EMFAC2002 version 2.2

DETAIL REPORT
(Pounds/Day - Summer)

AREA SOURCE EMISSION ESTIMATES (Summer Pounds per Day, Unmitigated)

Source	ROG	NOx	CO	SO2	PM10
Natural Gas	0.39	5.34	4.49	0	0.01
Hearth - No summer emissions					
Landscaping	0.12	0.00	0.78	0.00	0.00
Consumer Prdcts	0.00	-	-	-	-
Architectural Coatings	7.74	-	-	-	-
TOTALS(lbs/day,unmitigated)	8.26	5.35	5.27	0.00	0.01

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Regnl shop. center	95.38	94.68	950.75	0.68	102.99
TOTAL EMISSIONS (lbs/day)	95.38	94.68	950.75	0.68	102.99

Includes correction for passby trips.
Does not include double counting adjustment for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2010 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Acreage	Trip Rate	No. Units	Total Trips
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		Sum of Total Trips		20,629.12
		Total Vehicle Miles Traveled		67,649.81

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
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Light Truck < 3,750 lbs	15.20	2.00	96.00	2.00
Light Truck 3,751- 5,750	16.20	1.20	98.10	0.70
Med Truck 5,751- 8,500	7.30	1.40	95.90	2.70
Lite-Heavy 8,501-10,000	1.10	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.30	0.00	66.70	33.30
Med-Heavy 14,001-33,000	1.00	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.90	0.00	11.10	88.90
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.20	0.00	50.00	50.00
Motorcycle	1.60	68.80	31.20	0.00
School Bus	0.10	0.00	0.00	100.00
Motor Home	1.40	7.10	85.70	7.20

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	11.8	4.6	6.1	11.8	5.0	5.0
Rural Trip Length (miles)	15.0	10.0	10.0	15.0	10.0	10.0
Trip Speeds (mph)	30.0	30.0	30.0	30.0	30.0	30.0
% of Trips - Residential	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Regnl shop. center				2.0	1.0	97.0

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Area

Changes made to the default values for Operations

The operational emission year changed from 2005 to 2010.

Attachment 2
CO Roadside Concentration Calculations

[illegible]

Westfield Valley Fair

[illegible]

		Traffic Volume				1-Hour CO Contribution				Total 1-Hour CO Concentration		
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

Model: 300REOZDB

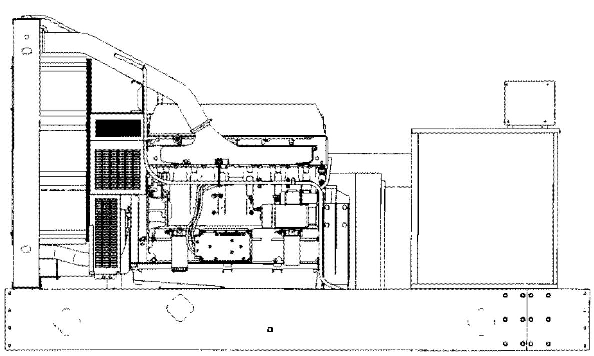
KOHLER. POWER SYSTEMS

190-600 V **4-Cycle Diesel**

ISO 9001
KOHLER POWER SYSTEMS
NATIONALLY REGISTERED

Ratings Range

		60 Hz	50 Hz
Standby:	**kW**	280-300	252
	kVA	350-375	315
Prime:	**kW**	255-270	228
	kVA	319-338	285



Generator Set Ratings

				130°C Rise Standby Rating		105°C Rise Prime Rating	
Alternator	**Voltage**	**Ph**	**Hz**	**kW/kVA**	**Amps**	**kW/kVA**	**Amps**
4UA13W/ 4UA13	120/208	3	60	300/375	1041	270/338	937
	120/240	3	60	300/375	902	270/338	812
	127/220	3	60	300/375	984	270/338	886
	139/240	3	60	300/375	902	270/338	812
	220/380	3	60	280/350	532	255/319	484
	240/416	3	60	300/375	520	270/338	468
	277/480	3	60	300/375	451	270/338	406
	347/600	3	60	300/375	361	270/338	325
	110/190	3	50	252/315	957	228/285	866
	110/220	3	50	252/315	827	228/285	748
	115/200	3	50	252/315	909	228/285	823
	120/208	3	50	252/315	874	228/285	791
	220/380	3	50	252/315	479	228/285	433
	230/400	3	50	252/315	455	228/285	411
	240/416	3	50	252/315	437	228/285	396

Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.
- The generator set complies with ISO 8528-5, Class G2, requirements for transient performance in all generator set configurations. Select the Decision-Maker™ 550 controller for improved voltage regulation and ISO 8528-5, Class G3, compliance.
- The generator set accepts rated load in one step.
- A one-year limited warranty covers all systems and components. Two-, five-, and ten-year extended warranties are also available.
- Alternator features:
  - Kohler's Fast-Response™ III wound field (WF) design alternator provides excellent voltage response and short-circuit capability using an auxiliary power brushless exciter.
  - Kohler's unique Fast-Response™ II excitation system delivers excellent voltage response and short circuit capability using a permanent magnet (PM)-excited alternator.
  - The brushless, rotating-field altemator has broadrange reconnectability.
- Other features:
  - Controllers are available for all applications. See controller features inside.
  - The low coolant level shutdown prevents overheating (standard on radiator models only).
  - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.
  - An electronic, isochronous governor delivers precise frequency regulation.
  - Electronic engine controls and a generator set microprocessor controller combine to deliver one of the most advanced control systems in today's market.

RATINGS: All three-phase units are rated at 0.8 power factor. *Standby Ratings:* Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Ratings are in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. *Prime Power Ratings:* Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528/1, overload power in accordance with ISO-3046/1, BS 5514, AS 2789, and DIN 6271. For limited running time and base load ratings, consult the factory. Obtain the technical information bulletin (TIB-101) on ratings guidelines for the complete ratings definitions. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever. NOTE: Order separate generator set specs for 50 or 60 Hz as this model cannot change frequency. GENERAL GUIDELINES FOR DERATION: *Altitude:* Derate 0.5% per 305 m (1000 ft.) elevation above 1525 m (5000 ft.) up to a maximum elevation of 3660 m (12000 ft.). *Temperature:* Derate 1.0% per 5.5°C (10°F) temperature above 40°C (104°F). For radiator cooling system capacity, derate 1.4°C (2.5°F) per 305 m (1000 ft.) elevation above 183 m (600 ft.).

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating Field
Exciter type	
Wound field (WF)	Wound Exciter Field with Separate Excitation Power Winding
Permanent magnet (PM)	Brushless, Permanent-Magnet
Leads: quantity, type	12, Reconnectable
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	
Wound field (WF) alternator	±0.25% Average
Permanent magnet (PM) alternator	±2% Average
550 controller (with 0.5% drift due to temperature variation)	3-Phase Sensing, ±0.25%
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current
Peak motor starting kVA:	(35% dip for voltages below)
480 V, 380 V 4UA13W/4UA13	980 (60Hz), 600 (50Hz)

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and dripproof construction.
- Vacuum-impregnated windings with fungus-resistant epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.
- Fast-Response™ III wound field (WF) brushless alternator with auxiliary power brushless exciter for excellent load response.
- Fast-Response™ II brushless alternator with brushless exciter for excellent load response.

Application Data

Engine

Engine Specifications	60 Hz	50 Hz
Manufacturer	Detroit Diesel	
Engine: model, type	S60, 4-Cycle Turbocharged, Aftercooled	
Cylinder arrangement	6, Inline	
Displacement, L (cu. in.)	12.7 (778)	
Bore and stroke, mm (in.)	130 x 160 (5.12 x 6.30)	
Compression ratio	16.5:1	
Piston speed, m/min. (ft./min.)	576 (1890)	480 (1575)
Main bearings: quantity, type	7, Precision Half-Shell	
Rated rpm	1800	1500
Max. power at rated rpm, kWm (BHP)	366 (490)	321 (430)
Cylinder head material	Cast Iron	
Piston: type, material	Crosshead, Malleable Iron	
Crankshaft material	Forged Steel	
Valve material:		
Intake	Iron Based Seat	
Exhaust	Nickel Based Seat	
Governor: type, make/model	DDEC Electronic Control	
Frequency regulation, no-load to full-load	Isochronous	
Frequency regulation, steady state	±0.25%	
Frequency	Fixed	
Air cleaner type, all models	Dry	

Exhaust

Exhaust System	60 Hz	50 Hz
Exhaust flow at rated kW, m^3/min. (cfm)	77.3 (2730)	61.2 (2163)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	437 (819)	428 (802)
Maximum allowable back pressure, kPa (in. Hg)	10.2 (3.0)	
Engine exhaust outlet size, mm (in.)	See ADV Drawing	

Engine Electrical

Engine Electrical System	60 Hz	50 Hz
Battery charging alternator:		
Ground (negative/positive)	Negative	
Volts (DC)	24	
Ampere rating	40	
Starter motor rated voltage (DC)	24	
Battery, recommended cold cranking amps (CCA):		
Qty., CCA rating each	Two, 950	
Battery voltage (DC)	12	

Fuel

Fuel System	60 Hz	50 Hz
Fuel supply line, min. ID, mm (in.)	13 (0.50)	
Fuel return line, min. ID, mm (in.)	8 (0.31)	
Max. lift, engine-driven fuel pump, m (ft.)	2.1 (6.8)	
Max. fuel flow, Lph (gph)	336 (88.9)	
Fuel prime pump	N/A	
Fuel filter: quantity, type	2, Primary/Secondary	
Recommended fuel	#2 Diesel	

Lubrication

Lubricating System	60 Hz	50 Hz
Type	Full Pressure	
Oil pan capacity, L (qt.)	30 (32)	
Oil pan capacity with filter, L (qt.)	36 (38)	
Oil filter: quantity, type	2, Cartridge	
Oil cooler	Water-Cooled	

Application Data

Cooling

Radiator System	60 Hz	50 Hz
Ambient temperature, °C (°F) *	50 (122)	
Engine jacket water capacity, L (gal.)	22.7 (6.0)	
Radiator system capacity, including engine, L (gal.)	45.4 (12)	
Engine jacket water flow, Lpm (gpm)	363 (96)	300 (80)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	123.8 (7040)	107.3 (6100)
Heat rejected to air charge cooler at rated kW, dry exhaust, kW (Btu/min.)	87.0 (4948)	70.3 (4000)
Water pump type	Centrifugal	
Fan diameter, including blades, mm (in.)	965 (38)	
Fan, kWm (HP)	22 (30)	13 (18)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H_2O)	0.125 (0.5)	

* Weather housing reduces ambient temperature capability by 6°C (10°F).

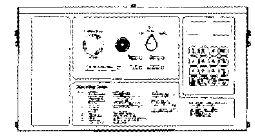
Operation Requirements

Air Requirements	60 Hz	50 Hz
Radiator-cooled cooling air, m^3/min. (scfm)†	561 (19800)	467 (16500)
Combustion air, m^3/min. (cfm)	31.2 (1102)	26.0 (918)
Heat rejected to ambient air:		
Engine, kW (Btu/min.)	51.8 (2949)	43.9 (2500)
Alternator, kW (Btu/min.)	24.3 (1382)	21.9 (1245)

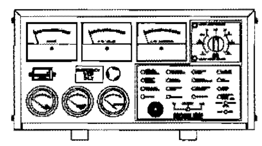
† Air density = 1.20 kg/m^3 (0.075 lbm/ft^3)

Fuel Consumption	60 Hz	50 Hz
Diesel, Lph (gph) at % load	**Standby Rating**	
100%	88.9 (23.5)	74.3 (19.6)
75%	68.4 (18.1)	54.6 (14.4)
50%	46.3 (12.2)	37.3 (9.8)
25%	25.9 (6.8)	20.2 (5.3)
Diesel, Lph (gph) at % load	**Prime Rating**	
100%	77.7 (20.5)	63.2 (16.7)
75%	59.4 (15.7)	47.8 (12.6)
50%	41.1 (10.9)	32.5 (8.6)
25%	22.8 (6.0)	17.1 (4.5)

Controllers



Decision-Maker™ 550 Controller
Audiovisual annunciation with NFPA 110 Level 1 capability.
Programmable microprocessor logic and digital display features.
Alternator safeguard circuit protection.
12- or 24-volt engine electrical system capability.
Remote start, remote annunciation, and remote communication options.
Refer to G6-46 for additional controller features and accessories.



Decision-Maker™ 3+, 16-Light Controller
Audiovisual annunciation with NFPA 110 Level 1 capability.
Microprocessor logic, AC meters, and engine gauge features.
12- or 24-volt engine electrical system capability.
Remote start, prime power, and remote annunciation options.
Refer to G6-30 for additional controller features and accessories.

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-565-3381, Fax 920-459-1646
For the nearest sales and service outlet in the
US and Canada, phone 1-800-544-2444
KohlerPowerSystems.com

Kohler Power Systems
Asia Pacific Headquarters
7 Jurong Pier Road
Singapore 619159
Phone (65) 6264-6422, Fax (65) 6264-6455

Standard Features and Accessories

Standard Features

- Alternator Protection (standard with 550 controller)
- Battery Rack and Cables
- Electronic, Isochronous Governor
- Oil Drain Extension

Accessories

Enclosed Unit

- ❑ Exhaust Silencer, Critical (kit: PA-354258)
- ❑ Exhaust Silencer, Residential (kit: PA-354257)
- ❑ Silencer Mounting Kit for Weather Housing
- ❑ Sound Enclosure (with roof-mounted hospital silencer)
- ❑ Tail Pipe and Rain Cap Kit
- ❑ Weather Housing (with roof-mounted silencer)
- ❑ Weather Enclosure with roof-mounted critical silencer (silencer shipped loose or mounted)

Open Unit

- ❑ Exhaust Silencer, Hospital (kits: PA-354903, PA-354905)
- ❑ Exhaust Silencer, Critical (kits: PA-354880, PA-354881)
- ❑ Exhaust Silencer, Residential (kits: PA-354882, PA-354883)
- ❑ Exhaust Silencer, Industrial (kits: PA-354904, PA-354906)
- ❑ Flexible Exhaust Connector, Stainless Steel

Cooling System

- ❑ Block Heater
- ❑ Radiator Duct Flange

Fuel System

- ❑ Flexible Fuel Lines
- ❑ Fuel Pressure Gauge
- ❑ Fuel/Water Separator with Prime Feature
- ❑ Hand Primer Pump
- ❑ Subbase Fuel Tanks
- ❑ Subbase Fuel Tank with Day Tank

Electrical System

- ❑ Battery
- ❑ Battery Charger, Equalize/Float Type
- ❑ Battery Heater

Engine and Alternator

- ❑ Alternator, Wound Field (WF)
- ❑ Alternator, Permanent Magnet (PM)
- ❑ Air Cleaner, Heavy Duty
- ❑ Air Cleaner Restriction Indicator
- ❑ Alternator Strip Heater
- ❑ Bus Bar Kits
- ❑ Crankcase Emission Canister
- ❑ CSA Certification
- ❑ Line Circuit Breaker (NEMA1 enclosure)
- ❑ Line Circuit Breaker with Shunt Trip (NEMA1 enclosure)
- ❑ Optional Alternators
- ❑ Rated Power Factor Testing
- ❑ Rodent Guards
- ❑ Safeguard Breaker (not available with 550 controller)
- ❑ Skid End Caps
- ❑ Voltage Regulation, 1%
- ❑ Voltage Regulator Sensing, Three-Phase

Paralleling System

- ❑ Load-Sharing Module
- ❑ Reactive Droop Compensator
- ❑ Voltage Regulator Relocation Kit

Maintenance and Literature

- ❑ General Maintenance Literature Kit
- ❑ Maintenance Kit (includes air, oil, and fuel filters)
- ❑ NFPA 110 Literature
- ❑ Overhaul Literature Kit
- ❑ Production Literature Kit

Controller

- ❑ Common Failure Relay Kit
- ❑ Communications Products and PC Software (550 controller only)
- ❑ Customer Connection Kit
- ❑ Dry Contact Kit (isolated alarm)
- ❑ Engine Prealarm Sender Kit
- ❑ Remote Annunciator Panel
- ❑ Remote Audiovisual Alarm Panel
- ❑ Remote Emergency Stop Kit
- ❑ Remote Mounting Cable
- ❑ Run Relay Kit

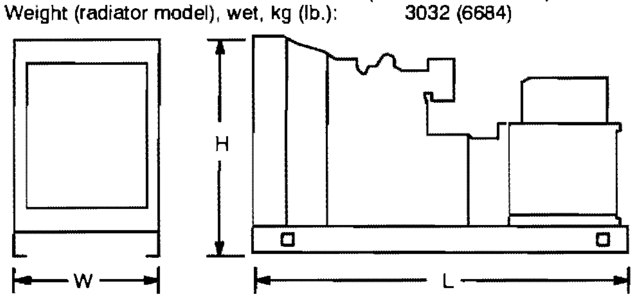
Miscellaneous Accessories

- ❑ ____________________
- ❑ ____________________
- ❑ ____________________
- ❑ ____________________
- ❑ ____________________
- ❑ ____________________

Dimensions and Weights

Overall Size, L x W x H, mm (in.): 3416 x 1270 x 1953 (134.5 x 50.0 x 76.9)

Weight (radiator model), wet, kg (lb.): 3032 (6684)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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